

The impact of financial crisis on earnings management: evidence from EU-25

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Abstract

This study examines the relationship between the financial crisis and earnings management of non-financial listed companies from 25 countries which belonged to the EU in 2006, over the period 2006-2014. Also, I intend to study whether the dividend distribution is motivation for companies to earnings management. In this empirical work, we use the discretionary accruals as a proxy of earnings management and the results were obtained using the OLS model. Our results suggest that earnings management by firms is lower in periods of financial crisis and firms that pay dividends have no tendency to earnings management.

Keywords: Earnings management; Financial crisis; Dividend distribution; Accruals

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1. Introduction

Earnings management has been the subject of interest of several empirical researches in recent years (Healy and Wahlen, 1999; Dechow and Skinner, 2000). The authors are interested in the study of earnings management to understand the impact of the recent financial crisis, as in the studies of the Filip and Raffournier (2014) and Cimini (2015).

The financial crisis and recent financial scandals associated with inappropriate accounting practices has reduced the confidence of investors, harming financial firms listed on the stock exchange (Bartram and Bodnar, 2009).

The quality of accounting information is important for all users of information for the decision making process, including customers, managers, market, state, but specifically for investors (Bhattacharya et al., 2013). The investors' confidence during the financial crisis decrease, because they believe that the flexibility of accounting standards and opportunism of managers make the earnings management affect the quality of financial statements (Gorgan et al., 2012).

Previous studies conclude that the earnings management decreases during the financial crisis and as investors expect greater earnings management, incentives to earnings management are lower (Cohen and Zarowin, 2007; Kousenidis et al., 2013; Cimini, 2015). Therefore, our research intends to increase the knowledge on this relevant topic and increase empirical evidence from existing literature.

In this sense, the main purpose of the study is to verify whether earnings management is related to the periods of financial crisis. Furthermore, we study if the dividend distribution is one of the incentives for earnings management. Our study is an evolution of the study of Cimini (2015), because in addition to study 25 EU countries, we added the study of incentives of earnings management. Another differentiating factor of this study is the methodology used, which is more recent and more common in studies on the earnings management. The sample used in the research consists of non-financial firms listed of 25 EU countries for the period 2006-2014. The data were collected from Datastream database and the final sample includes a total of 2404 firms. The model used in the study is of Kothari et al., (2005), that it is an improved version of the Modified Jones Model.

First, we calculated the discretionary accruals by the model of Kothari et al., (2005). The discretionary accruals are a proxy of the earnings management. Then, we developed an empirical model with control variables, that was estimated by the method of ordinary least squares (OLS), examining the relationship between discretionary accruals with financial crisis, dividend distribution and other variables included in the study.

Our main results can be divided into two groups. First, our findings suggest that earnings management decreases in the crisis period. The average of the discretionary accruals is less in the crisis period, suggesting that there is more quality of reported financial statements.

Second, our results that are related with the incentives to manipulate the earnings, suggest that earnings management is not one of the incentives to manipulate the earnings.

This research contributes to the literature in several aspects. First, it is a current topic and one of great interest to society and academics. The literature has many studies on earnings management, but few are the authors who refer to the EU, which makes this research even more relevant. Second, the study uses a very large sample, studying 25 countries, and the majority of the investigations related to the topic just study some countries in specific, for example, those countries that were in a more fragile situation to economic and financial developments during the financial crisis. Thirdly, in addition to the study of the relationship of earnings management with financial crisis, we studied a possible incentive for the earnings management, also studied by Naveen D. et al., (2007). Most research only studies the relationship of the financial crisis with the earnings management or just the incentives that lead to the earnings management. Few researches study these two components simultaneously. Finally, the empirical model used to study the relationship between discretionary accruals and the financial crisis, the dividend distributions and the remaining variables that may be related to the earnings management, was a model built on the study in a large set of articles that examined what business characteristics and conditions which firms are subordinated that lead to the earnings management.

The remainder of this study is organized as follows. Section 2 shows the literature review, as well the hypotheses development. Section 3 presents the sample and descriptive statistics. In section 4 the methodology includes the definition of variables and empirical models and section 5 describes the results. Finally, section 6 shows the conclusions, the limitation of the study and future research suggestions.

2. Literature Review and Hypotheses Development

In recent years, the earnings management has been a topic of interest to be studied by researchers. However, there is no consensus about what is the earnings management, so there are different interpretations of the concept (Beneish, 2001).

In this context, Schipper (1989, pp.92) defines earnings management as "purposeful intervention in the external financial reporting process with the intent of obtaining some private gain (as opposed to, say, merely facilitation the neutral operation of the process)". In turn, to Healy and Wahlen (1999) the earnings management occurs when managers decide to modify financial reporting to either mislead stakeholders about the economic performance of the firm or to influence the earnings that depend on accounting indicators.

Many studies of earnings management have in common changes in financial reporting, so that there is flexibility in the accounting principles that allow managers to change the results of the firms. Thus, manipulation of results is carried out within the limits of accounting principles. When the earnings management is done outside of the flexibility allowed by accounting principles it is considered fraud, which is defined by International Federation of Accountants (IFAC, pp. 159) as "an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage."

So, many studies examine whether managers are opportunistic in terms of earnings management (Naveen D. et al., 2007).

2.1. Models to study earnings management

There are several models to study the earnings management, but the most used in the literature are the models based on accruals, because they allow us to understand the behaviour of discretionary accruals and identify earnings management practices carried out by managers.

The models based on accruals allow us to distinguish between discretionary accruals and non-discretionary accruals. Non-discretionary accruals are the "normal" accruals to capture adjustments resulting from normal activity of the company and discretionary

accruals, called "abnormal" accruals, are used to capture the distortions resulting from the practice of earnings management. The sum of discretionary accruals and non-discretionary accruals result in total accruals. The accruals models are used to estimate the levels of "normal" accruals and residuals from the models are used as a measure of discretionary accruals. (Dechow et al., 2010).

According to Dechow et al., (2010), the discretionary accruals are used by many authors as a proxy for the measure of earnings quality and the most widely used accruals models are Jones (1991), Dechow et al., (1995), Kothari et al., (2005), Dechow and Dichev (2002) and Francis et al., (2005).

Jones (1991) model assumes that the accruals are due to the sales growth and are used to control the economic environment of the company, and includes the gross property, plant and equipment to capture the total accruals related to non-discretionary depreciation expenses. So, the model proposed by Jones to estimate the accruals is as follows:

$$\frac{TA_{it}}{A_{it-1}} = \frac{\alpha_0}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$$

Where:

TA_{it} = total accruals for firm i at year t;

ΔREV_{it} = revenues in year t less revenues in year t-1 for firm i;

PPE_{it} = gross property, plant and equipment for firm i at year t;

A_{it-1} = total assets in year t-1 for firm i;

E_{it} = error term for firm i at year t.

All variables in model are scaled by lagged assets.

However, Jones model assumes that sales are not manipulated. With the aim to overcome this limitation, Dechow et al., (1995) proposed a Modified Jones Model, which assumes that the credit sales are resulted from earnings management. The parameter estimates and non-discretionary accruals are obtained in the same way as the original Jones Model.

The model proposed is the following:

$$\frac{TA_{it}}{A_{it-1}} = \frac{\alpha_0}{A_{it-1}} + \alpha_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$$

Where ΔREC_{it} = net receivables at year t less net receivables at year t-1 for firm i.

In turn, Kothari et al., (2005) conclude that the methods for determining discretionary accruals have less specificity for companies with performance out of the normal. Thus, with the aim to control the effect of performance on measured discretionary accrual, they suggest that one should add the return on assets (ROA) variable to the Modified Jones Model. So, the model is as follows:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 + \frac{\alpha_1}{A_{it-1}} + \alpha_2 \frac{\Delta SALES_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \alpha_4 ROA_{it (or it-1)} + \varepsilon_{it}$$

Kothari et al., (2005) define $\Delta Sales$ as change in revenues less change in receivable ($\Delta REV - \Delta REC$), as calculated in Modified Jones Model. The authors also present results using matching performance with return on assets for the current year and the past year, ROA_t and ROA_{t-1} , respectively. They concluded that matching based on ROA_{t-1} performance is worse than using ROA_t .

2.2. Earnings management and earnings quality

To study the earnings management, the authors use models that measure the results quality with indicators such as accruals, persistence, timeliness and smoothness. Dechow et al., (2010) emphasize that earnings quality is a proxy of firm's fundamental performance. The authors define earnings quality as a proxy of firm's performance and they suggest that high earnings quality is relevant to a future decision.

Kin Lo (2008) says that high earnings management results in low quality of results. However, if a firm doesn't practice earnings management it is not guaranteed to have results with high quality, because the quality of earnings depends on other factors. But, if we consider these factors that affect results quality, we can relate quality of results with results quality, and they are negatively related.

2.3. Earnings management and financial crisis

More recently, earnings management has been the subject of great interest to be studied due to the recent financial crisis, however, few studies have investigated the subject using the EU as a reference (Cimini, 2015). Crăciun and Ochea (2004) concluded that the economic crisis originated volatility and resulting in increased uncertainty in the

business environment. Lang and Maffett (2011) claim that the liquidity variability increases during the financial crisis, especially in companies with less transparency in their financial reporting.

However, despite several studies on the relationship of the financial crisis and earnings management, the results are very different and depend on whether they analysed financial or non-financial firms. When investigating the impact of the financial crisis in the earnings management of financial entities one usually finds an increase in the specific accruals, so the misrepresentation increases (Cimini, 2015).

Regarding the study of non-financial companies, Cimini (2015) analysed 1692 non-financial listed entities in the 15 countries that belonged to the EU at the time of issuance the Regulation 1606/2006 in the period 2006-2012, considering the years 2008-2012 as crisis years. Adopting an event study methodology and analysing the abnormal accruals concluded that only in France and Luxembourg abnormal accruals estimated in the period before the crisis are higher than estimated in crisis years. They also concluded that the abnormal accruals during the crisis period are more negative than in the period before the crisis, suggesting that the decrease in earnings management is, probably, due to the high quality of financial reporting and audit quality on the financial crisis.

Filip and Raffournier (2014) believe that studying the EU as a whole is more robust than a country by country approach. They found a decrease in earnings management in the crisis years, 2008-2009, for the period before the crisis, 2006-2007, studying the EU as a whole. However, they performed a robustness test and studying country by country concluded that not all countries have the same declining trend of earnings management and found an increase in earnings management in Austria, Belgium, France, Norway and Portugal.

Likewise, Iatridis and Dimitras (2013) investigated the value relevance and the earnings management related to the financial crisis to 789 non-financial listed companies audited by the Big 4, over the period 2005-2011, for 5 European countries: Portugal, Italy, Ireland, Spain and Greece. They concluded that even being audited by the Big 4, companies have a tendency to resort to earnings management and Portugal, Italy and Greece have a stronger tendency towards earnings management.

Studying conservative accounting, Francis et al., (2013) find that the financial crisis increased the demand for high quality audit and high quality financial information. Also Kousenidis et al., (2013) studied whether incentives, induced by the crisis, to earnings management have led to differential effects in earnings quality. The authors examined value relevance, timeliness, conditional conservatism, smoothing, management, persistence and predictability as earnings quality attributes. They analysed 552 non-financial entities listed in Greece, Italy, Portugal, Ireland and Spain over the period 2008-2011. In order to study earnings management, the authors concluded a reduction of earnings management after financial crisis, because companies rely on external financing and have incentives to increase their financial reporting quality to attract prospective investors.

Therefore, we hoped that the financial crisis would cause a decrease in the earnings management, so we defined our first research hypothesis:

H1: The earnings management decreased with the financial crisis of 2008.

2.4. Incentives to earnings management

Managers can increase or decrease the earnings of firms according to their motivations and interests (Beneish, 2001). There are several incentives to manipulate the results, and we will study the dividend distribution (Naveen et al., 2007).

Regarding the dividend distribution, Naveen et al., (2007) studied whether the firms control their earnings to meet dividend thresholds, because the restrictions of dividends are common in the debt contracts. The authors studied firms of S&P 1500 listed in Compustat's Execucomp database for the period 1992-2005 and excluded financial firms, utilities and firms that are not publicly traded. They concluded that the firms are prone to cut dividends if they don't get to eliminate the deficit through discretionary accruals and that the discretionary accruals increase for the firms that distribute dividends, but not for the firms that don't distribute, in other words, the firms that distribute dividends have a greater tendency to earnings management.

More specifically, Kasanen et al., (1996) studies dividend-based earnings management in Finland for a sample of 37 Finnish listed firms over the period 1970-1989. They find

evidence of dividend impel the earnings management. The need to manage earnings results the contract to pay out the dividends to the controlling owners. So, the authors concluded that the firms increase earnings in response to the pressure of major shareholders to pay dividends.

Thus, based on the existing literature, we define our second hypothesis:

H2: The earnings management is positively associated with distribution of dividends.

3. Sample and descriptive statistics

The sample used in the study is described in this section. First, we present all the sample construction process, followed by descriptive statistics.

3.1. Sample

The data used in this research were obtained from the Datastream database. The study is based on the analysis of non-financial listed firms, over the period of 2006 to 2014¹, which belong to the EU-25² countries listed below: Germany, France, Belgium, Italy, Netherlands, Luxembourg, United Kingdom, Denmark, Ireland, Greece, Portugal, Spain, Austria, Sweden, Finland, Slovenia, Slovakia, Czech Republic, Cyprus, Estonia, Latvia, Malta, Poland, Lithuania and Hungary.

We excluded financial firms (SIC codes 60-67) and utilities (SIC codes 49) because financial and utilities firms have specific regulations.

Thus, the initial sample was of 6607 firms, and we deduct the sectors mentioned above, reducing our sample to 5411 firms. After, firms that do not have, at least, six full years of data were excluded and we also excluded the industries that had less than 10 firms. These restrictions result in a final sample of 2404 firms.

3.2. Descriptive statistics

Table 1 shows the composition of the sample by country. It appears that the sample mainly consists of United Kingdom, which represents 33,44% of the sample, followed by France with a weight in the sample of 15,22% and Germany with a total of 11,61% of sampled companies. These three countries have a large representation in the sample, they have more than half of the samples companies, i.e. 60,27%.

The least representative country of the sample is Slovakia with a total of only two companies, representing 0,08% of the sample. Following the Czech Republic and Lithuania represented with five firms each, i.e. these countries represent 0,21% each.

¹ We study the period 2006-2014, because we consider crisis years 2008-2012 and to study the relationship of earnings management and financial crisis, we analyse years before the crisis and years after the crisis, defining 2006-2007 as years before the crisis and 2013-2014 as years after the crisis.

² Our sample consists of 25 countries of EU, because we define the criteria to have the same number of countries in all years of study, so we choose to study all the countries that belonged to the EU in the first year of study, i.e. in 2006.

Table 1: Number the firms per country

Country	Total firms	Percentage (%)
Austria	34	1,41%
Belgium	61	2,54%
Cyprus	9	0,37%
Czech Republic	5	0,21%
Denmark	64	2,66%
Estonia	10	0,42%
Finland	89	3,70%
France	366	15,22%
Germany	279	11,61%
Greece	79	3,29%
Hungary	12	0,50%
Italy	51	2,12%
Ireland	145	6,03%
Latvia	8	0,33%
Lithuania	5	0,21%
Luxembourg	9	0,37%
Malta	7	0,29%
Netherlands	70	2,91%
Poland	109	4,53%
Portugal	31	1,29%
Slovakia	2	0,08%
Slovenia	19	0,79%
Spain	7	0,29%
Sweden	129	5,37%
United Kingdom	804	33,44%
TOTAL	2404	100%

Table 2 presents the composition of the sample by industry.

The industry 34, named Business Services, is the industry with the largest number of companies, with 407 companies, representing 16.93% of the total sample. Then, the industries with more weight in the sample are industry 42 (Retail), industry 21 (Machinery), industry 18 (Construction) and 30 (Petroleum and Natural Gas) with 4,87%, 4,83%, 4,53% and 4,45%, respectively. The industries with the fewest number of firms are industries 29 and 33, with 12 firms each, industry 39 with 15 firms, industry 24 with 16 firms and industry 11 with 18 firms.

All industries have more than 10 firms each, because we eliminated the industries with less than 10 firms, due to their low representation in the sample.

Table 2: Composition of the sample by industry

Industry	Denomination	Total firms	Percentage (%)
1	Agriculture	44	1,83%
2	Food Products	60	2,50%
4	Beer & Liquor	35	1,46%
6	Recreation	22	0,92%
7	Entertainment	63	2,62%
8	Printing and Publishing	48	2,00%
9	Consumer Goods	59	2,45%
10	Apparel	35	1,46%
11	Healthcare	18	0,75%
12	Medical Equipment	39	1,62%
13	Pharmaceutical Products	72	3,00%
14	Chemicals	68	2,83%
15	Rubber and Plastic Products	22	0,92%
16	Textiles	22	0,92%
17	Construction Materials	83	3,45%
18	Construction	109	4,53%
19	Steel Works Etc	49	2,04%
21	Machinery	116	4,83%
22	Electrical Equipment	36	1,50%
23	Automobiles and Trucks	54	2,25%
24	Aircraft	16	0,67%
27	Precious Metals	58	2,41%
	Non-Metallic and Industrial Metal		
28	Mining	53	2,20%
29	Coal	12	0,50%
30	Petroleum and Natural Gas	107	4,45%
32	Communication	94	3,91%
33	Personal Services	12	0,50%
34	Business Services	407	16,93%
35	Computers	77	3,20%
36	Electronic Equipment	92	3,83%
37	Measuring and Control Equipment	20	0,83%
38	Business Supplies	40	1,66%
39	Shipping Containers	15	0,62%
40	Transportation	93	3,87%
41	Wholesale	88	3,66%
42	Retail	117	4,87%
43	Restaurants, Hotels, Motels	49	2,04%
TOTAL		2404	100%

4. Methodology

In this chapter, we will describe the research methodology used in this study. First the variables are presented, followed by the research models and methods used in the analysis.

To study the relationship of the financial crisis and the earnings management, we will use two empirical models. The first model allows us to discover discretionary accruals, which are the residues of the equation as in previous research. Then, the second model allows us to study the relationship of discretionary accruals with several incentives, namely the distribution of dividends, with the financial crisis.

4.1. Variables

To study whether certain incentives have, or not, an impact on earnings management using discretionary accruals and whether the earnings management and financial crisis are related, we will use a model that is based on a set of existing literature articles. However, despite the model has been built and adapted according to the incentives and relationship that we wanted to study, we base on study of Van Tendeloo and Vanstraelen (2008), and Silva (2013) to define the control variables to use.

All the control variables used in this study, their abbreviation, description and expected signal are summarises in table 3.

Table 3: Definition and expected signal for variables

Variable	Abbreviation	Definition	Expected signal
Discretionary accruals	DA	Residues of the first equation	-
Crisis	Crisis	Dummy = 1 if year is 2008,2009,2010,2011 or 2012, and 0 otherwise.	
Dividends	Div	Dummy = 1 if firm pays dividends, and 0 otherwise.	+
Size	Size	Natural logarithm of total assets	+
Sales growth	Growth	$[(Sales_t - Sales_{t-1}) / Sales_{t-1}] * 100$?
Debt	Debt	Total liabilities / Total assets	+
Country	Country	Sum of country dummy variable	
Industry	Industry	Sum of industry dummy variable	

The model is composed of the dependent variable, discretionary accruals (DA), and a set of control variables, such as crisis, dividends, size, growth, debt, country and industry. Following a more detailed description of each variable:

- I) Discretionary accruals (DA) are a dependent variable of model (2) and are the residues of the first model. Discretionary accruals are employed as a proxy of earnings management and are often used to capture the accounting distortions and, as such, is related to the earnings management, we will use as a measure to study the relationship with certain incentives and the financial crisis of 2008. We consider the squared abnormal accruals as an inverse measure of earnings quality, because when accruals deviate significantly, we assume that deviations are discretionary accruals and reduce the earnings quality, as explained by Rajgopal and Venkatachalan (2011).

- II) The recent financial crisis of 2008 has been the subject of study interest, because it could have earnings management to distort the negative impact of the crisis on firms. Therefore, in our study we will use the crisis dummy variable to study the relationship of the financial crisis with the earnings management. Thus, the variable has a value equal to one if the observation year is between 2008 and 2012, and zero otherwise. It is expected negative signal because in period of crisis there is high audit quality and high quality of financial reporting, as explained by Cimini (2015) and Francis et al., (2013), so there is less earnings management and the earnings quality increases.
- III) Naveen et al., (2007) argued that the level of discretionary accruals increase to the payers of dividends, but not for firms that do not pay dividends. So, the authors conclude that there is evidence that earnings management is related to the dividend distribution, so we expect signal to be positive, because it decreases the earnings quality. Thus, we include the dividend dummy variable to control the impact of dividends on accounting choices, and it assumes value one if the company pays dividends, and zero otherwise.
- IV) The variable size is defined as natural logarithm of total assets, according to Van Tendeloo and Vanstraelen (2008) and Lopes (2011). The size of the firm can have an impact on earnings management because the biggest firms have better accounting services as mentioned by Bradshaw et al., (2004), Warfield et al., (1995) and DeFond and Park, (1997). Watts and Zimmerman (1990) refers that there is an association between the size of the firm and accounting choices, because bigger firms tend to use accounting methods to modify the earnings. So, it is expected that firm size decrease the earnings quality, therefore firm size is positively correlated with discretionary accruals.
- V) Sales growth is used as a proxy of firm growth and is calculated as Van Tendeloo and Vanstraelen (2008) that defined as yearly percentage change in sales, so we use the following expression: $[(Sales_t - Sales_{t-1}) / Sales_{t-1}] * 100$.
- VI) Debt is a leverage variable, given by the ratio of total liabilities to total assets, as calculated by Van Tendeloo and Vanstraelen (2008). The expected signal is positive because higher leverage means higher risk and costs. The managers aim

to avoid issues in the debt covenants, as mentioned by Bradshaw et al., (2004), Warfield et al., (1995) and Beatty and Weber (2003).

VII) The variable country and the variable industry are dummy variables that allow us to study and to control the effects of the characteristics of different countries and industry, respectively. We classify the firms of our sample according to the 48 Fama French (1997) industry classification codes. The variable country is calculated as the sum of 24 dummy variables of country and the variable industry is the sum of 36 dummy variables of industry.

4.2. Empirical models

The variables explained above result in a set of empirical models. For the study of the earnings management, we use as study measure the abnormal accruals.

So, the first regression model is stated below:

$$TA_{it} = \alpha_0 + \frac{\alpha_1}{Assets_{it-1}} + \alpha_2 \Delta Sales_{it} + \alpha_3 PPE_{it} + \alpha_4 ROA_{it} + \varepsilon_{it} \quad (1)$$

Where:

TA_{it} = Total accruals for firm i at year t;

$Assets_{it-1}$ = Total assets for firm i at year t-1;

$\Delta Sales_{it}$ = $\Delta Sales_{it} - \Delta Receivables_{it}$ = change in sales for firm i at year t less change in receivables for firm i at year t

PPE_{it} = Net property, plant and equipment for firm i at year t;

ROA_{it} = Return on assets for firm i at year t;

E_{it} = Error term for firm i at year t;

This model is used by Kothari et al., (2005). It is identical to the modified version of the Jones (1991) but adds variables of return on assets (ROA). All variables, excluding ROA, are scaled by lagged assets to reduce heteroscedasticity and to allow comparison between firms.

The dependent variable is the total accruals (TA) and is calculated as Δ Current assets – Δ cash – Δ current liabilities + Δ Current portion of long-term debt – Depreciation and amortization, where Δ is a change between time t and time t-1.

Return on assets (ROA) is a control variable, introduced by Kothari et al., (2005) and calculated as net income divided by total assets. The authors suggest adding ROA as a control variable because it controls the effect of performance on discretionary accruals, i.e. allows to control the abnormal operating performance.

Discretionary accruals measure, that is our estimate, is obtained through the residues of the equation. The residues were calculated industry to industry by EViews software. The equation above was estimated using OLS (ordinary least squares method).

The constant term reduces the heteroscedasticity and includes the variable ROA as a measure to control for firm performance, because it allows to detect abnormal operating performance (Kothari et al., 2005).

Then, the model used to study the impact of the financial crisis in the earnings management and the relationship of dividend payments with the earnings management is the following:

$$DA_{it} = \alpha_0 + \alpha_1 CRISIS_{it} + \alpha_2 DIV_{it} + \alpha_3 SIZE_{it} + \alpha_4 GROWTH_{it} + \alpha_5 DEBT_{it} + \Sigma COUNTRY_{it} + \Sigma INDUSTRY_{it} + \varepsilon_{it} \quad (2)$$

This model was built based on different literature, for example, Van Tendeloo and Vanstraelen (2008) and Silva (2013). The variables chosen for the model result from the conclusions of other studies that found out that the dividend distribution, the size of the company, the sales growth, the debt contracts, the country and the industry where the company operates have an impact on earnings management.

The dependent variable in this model, discretionary accruals (DA) is the residues of the first equation. Thus, we calculate discretionary accruals in the first equation, which is the component of total accruals that can be manipulated. According to Rajgopal and Venkatachalan (2011), we consider the squared abnormal accruals as an inverse measure of earnings quality. When accruals deviate significantly, we assume that deviations are discretionary accruals and reduce the earnings quality. Then, we use squared discretionary accruals in the second equation in order to compare to the incentives to manipulate results, to the financial crisis and to the country and industry characteristic where the company operates.

The two models were estimated using the methodology for panel data and this equation is estimated using OLS.

5. Results

This section will present the results of the study. First, a descriptive analysis and correlation matrix will be presented, followed by empirical results.

5.1. Descriptive analysis

Table 4 presents the descriptive statistics of variables. Panel A shows the descriptive statistics to non-crisis period (2006-2007 and 2013-2014) and Panel B shows descriptive statistics to crisis period (2008-2012).

Table 4: Summary Statistics

Panel A: Descriptive Statistics Non-Crisis Period (2006-2007 and 2013-2014)

	DA	DIV	SIZE	GROWTH	DEBT
Mean	0,1428	0,6164	12,6507	102,7279	0,5465
Median	0,0028	1,0000	12,5389	5,2861	0,5299
Std. Dev.	5,6856	0,4863	2,6941	4141,5102	0,6723
Observations	8797	9262	5000	8888	9378

Panel B: Descriptive Statistics Crisis Period (2008-2012)

	DA	DIV	SIZE	GROWTH	DEBT
Mean	0,0530	0,6072	12,7000	479,2106	0,6111
Median	0,0027	1,0000	12,5955	4,7002	0,5338
Std. Dev.	0,6807	0,4884	2,6106	43401,3385	6,1678
Observations	11663	11833	9880	11461	11948

Panel A shows the summary statistics to non-crisis period, presenting the mean, median, standard deviation and total number of observation. We analyse the variables DA (Discretionary accruals), Dividends (DIV), Firm Size (SIZE), Firm Growth (Growth) and Leverage (DEBT). The DA is squared discretionary accruals. Panel B presents the summary statistics to crisis period and shows the mean, median, standard deviation and total number of observation for the same variables of Panel A.

As you can see in table 4, the mean squared discretionary accruals decreases in the crisis period compared to the non-crisis period, decreasing from 0,1428 to 0,0530. Although less significant, the median follows the mean down. This analysis shows that firms make less earnings management in financial crisis periods. The mean of DIV in non-crisis period is 61,64% and is very similar to crisis period, which is 60,72%.

Table 5: Correlation Matrix

Panel A: Correlation Matrix to Non-Crisis Period					
	DA	DIV	SIZE	GROWTH	DEBT
DA	1,0000				
DIV	-0,0525	1,0000			
SIZE	-0,0389	0,4311	1,0000		
GROWTH	0,0109	-0,0283	-0,0156	1,0000	
DEBT	-0,0358	0,0305	0,1189	-0,0273	1,0000

Panel B: Correlation Matrix to Crisis Period					
	DA	DIV	SIZE	GROWTH	DEBT
DA	1,0000				
DIV	-0,0557	1,0000			
SIZE	-0,0615	0,4375	1,0000		
GROWTH	0,0011	0,0058	-0,0055	1,0000	
DEBT	0,0962	-0,0207	-0,0070	-0,0063	1,0000

Table 5 presents the correlation matrices that allow us to study the relationship between the variables used in the study. The correlation coefficients are not high, all values are less than 0,44 in absolute values, so there are no collinearity issues.

Analysing table 5, we verified that dividend distribution and size are negatively related with discretionary accruals in non-crisis period and crisis period. But, the debt is negatively related with discretionary accruals in non-crisis period and positively correlated in crisis period.

5.2. Multivariate Results

The results of empirical model are obtained from OLS estimation. Table 6 shows the results to non-crisis period (Panel A) and to crisis period (Panel B).

Table 6: Coefficients estimated to non-crisis and crisis periods

Panel A: Coefficients estimated to non-crisis period		
Variable	Coefficient	Expected signal
C	0,4553 (0,2094)	
DIV	-0,0804 (0,0567) *	+
SIZE	-0,0271 (0,0126) **	+
GROWTH	0,0000 (0,0000)***	?
DEBT	-0,1672 (0,0864) *	+
Industry Dummies	YES	
Country Dummies	YES	
R-squared	0,0214	
Adjusted R-squared	0,0070	
F-statistic	1,4866	
Prob(F-statistic)	0,0075	

Panel B: Coefficients estimated to crisis period		
Variable	Coefficient	Expected signal
C	0,1120 (0,0591)	
DIV	-0,0285 (0,0151) **	+
SIZE	-0,0103 (0,0034) ***	+
GROWTH	0,0000 (0,0000)***	?
DEBT	0,1058 (0,0111) **	+
Industry Dummies	YES	
Country Dummies	YES	
R-squared	0,0215	
Adjusted R-squared	0,0147	
F-statistic	3,1386	
Prob(F-statistic)	0,0000	

The standard errors are in parentheses below each coefficient and the significance are illustrated with ***, ** and *, which are the statistical significance at 1%, 5% and 10%, respectively.

It can be observed that although the expected signal from the dividend distribution was positive, the coefficient has a negative signal in both financial crisis period and non-financial crisis period. The value of the coefficient is reduced in the period of financial crisis and it is significant at 5%. This result of the investigation is opposed to the study of Naveen D. et al., (2007) that claim that firms that pay dividends are more likely to engage in earnings management than firms that do not pay dividends. This difference of signals can be explained by the sample used, or as mentioned by Cohen and Zarowin (2007) and Strobl (2008), incentives decrease in the financial crisis period because investors are vigilant and expect that there is a higher level of earnings management. Therefore, the results suggest that firms that pay dividends tend not to engage in earnings management.

Similarly, it was expected that big firms have more tendency to earnings management. However, it appears to have a negative coefficient and it is significant at 5% and 1% in non-financial crisis period and financial crisis period, respectively. This result is contradictory to the study of Watts and Zimmerman (1990) that claim that the largest firms tend to use accounting methods to modify the earnings. However, larger firms tend to be audited, especially by a big 4, and as mentioned by Bradshaw et al., (2004) and Mitton (2002) companies audited by a big 4 have more accurate accounting information, so there is less earnings management.

The coefficient of debt is positive in financial crisis period, as was the expected signal, and it is significant at 5%. This result is consistent with the suggested by Bradshaw et al., (2004), Warfield et al., (1995) and Beatty et al., (2002) because firms want to avoid issues in the debt covenants, so if financial crisis affect the firm's results, this leads to earnings management. However, in a non-financial crisis period the firms with debt tend not to do earnings management.

6. Conclusions

The aim of this study was to analyse whether the financial crisis motivates the earnings management, thus having an impact on earnings quality reported by firms. Apart from this question, we also focus on the study of the distribution of dividends as an incentive to earnings management. The study is evidenced by its importance and contribution, because it covers a large number of EU countries and the users of accounting information require quality and credible information.

So, for the preparation of the study, we resorted to a sample of non-financial listed firms, over the period of 2006 to 2014, to the EU-25 countries. After several exceptions, the final sample consists of 2404 firms.

First of all, it was necessary to use a model that calculates the discretionary accruals, which is used as a measure of earnings management. The model used for this purpose is the model of Kothari et al., (2005). After determining the discretionary accruals, we used a model with control variables for analysis of incentives for earnings management.

The study results show that the non-financial listed European companies tend to manipulate less results in periods of financial crisis than in the period of financial non-crisis. Since there is less earnings management, it is expected that the results of companies have lower quality in periods of financial crisis.

Based on the tests results we can also argue that the majority of the variables are negatively correlated with discretionary accruals, in the financial crisis period and financial non-crisis period. In other words, it means that these variables are not an incentive to manipulate the results. Thus, companies that pay dividends, firm size and sales growth are not incentives to manipulate the results in financial crisis period and in financial non-crisis period. However, firms that have debts tend to manipulate more their results in a context of financial crisis period.

This study has some limitations, such as the way it measures the results quality. We used the model of Kothari et al., (2005), however there are other models also based on accruals to study the results quality and other models that study other characteristics of the results as relevance, conservatism, persistence and predictability.

Since this topic is current, as future research suggestions, would be of interest to study the subject with other models and compare the results. It would also be relevant to include other independent variables as control variables, including whether the company is audited or not by a Big 4. In this regard, the study could be extended to the study of other incentives such as the remuneration of managers based on the results.

7. References

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